

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A computer program device readable by a machine, tangibly embodying a program of instructions executable by the machine for method of rearranging generating sub-codes of sub-code sets two dimensional quasi-complementary turbo codes (QCTCs), to perform method comprising the steps of:

generating sub-code sets of QCTCs with given code rates, each sub-code belonging to one sub-code set having the same code rate and each sub-code set having a different code rate;
and

rearranging an order of the sub-codes of a sub-code set with a same or different code rate that is to be used transmitted after a sub-code with a predetermined code rate according to a priority of the sub-codes.

2. (Currently Amended) The device method of claim 1, wherein the sub-code is represented by in a matrix format with elements representing puncturing and repetition positions.

3. (Currently Amended) The device method of claim 1, wherein the rearranging step comprises the steps of:

generating new sub-code sets, a representative matrix for each sub-code in each new sub-code set having as many columns as the least common multiple of the numbers of columns of each sub-code in the sub-code sets; and

determining priority of the matrixes of sub-codes in each new sub-code set so that a matrix generated by combining matrixes from two of the new sub-code sets has a quasi-complementary turbo code (QCTC) characteristic, a higher priority assigned to a more desirable QCTC characteristic, and rearranging the matrixes in each new sub-code according to the priority, wherein the QCTC characteristic are the elements of the matrix that have a uniform distribution of repetition and puncturing.

4. (Cancelled)

5. (Currently Amended) A computer program device readable by a machine, tangibly embodying a program of instructions executable by the machine for method of rearranging matrixes of sub-codes of sub-code sets QCTCs, to perform method comprising the steps of:

generating sub-code sets of QCTCs corresponding to a plurality of system given code rates, each sub-code of the sub-code set represented in being a matrix format with elements representing repetition and puncturing positions;

generating new sub-code sets, a matrix of each sub-code in a new sub-code set having as many columns as a least common multiple of the numbers of columns of sub-codes in the sub-code sets;

determining priority of the matrixes of sub-codes in each new sub-code set so that a matrix generated by combining matrixes from two of the new sub-code sets has a quasi-complementary turbo code (QCTC) characteristic, a higher priority assigned to a more desirable QCTC characteristic, wherein the QCTC characteristic are the elements of the matrix that have a uniform distribution of repetition and puncturing; and

rearranging the matrixes in each new sub-code according to the priority.

6. (Currently Amended) A computer program device readable by a machine, tangibly embodying a program of instructions executable by the machine for method of transmitting symbols data using sub-codes of sub-code sets two dimensional QCTCs, to perform method comprising the steps of:

generating sub-code sets with given code rates;

rearranging an order of the sub-codes in the sub-code sets according to a priority of the sub-codes of QCTCs, said sub codes sets corresponding to a plurality of given code rates and storing the rearranged sub-codes;

selecting a sub-code set QCTC with a code rate determined for transmission; and

transmitting data symbols using a sub-code in the selected sub-code set of the selected QCTC.

7. (Currently Amended) The device method of claim 6, wherein the rearranging step comprises the steps of:

generating new sub-code sets, a representative matrix of each sub-code of the new sub-code set having as many columns as the least common multiple of numbers of the columns of each sub-codes in the sub-code sets;

determining priority of the matrixes of sub-codes in each new sub-code set so that a matrix generated by combining matrixes from two of the new sub-code sets has a QCTC characteristic, a higher priority assigned to a more desirable QCTC characteristic, wherein the QCTC characteristic are the elements of the matrix that have a uniform distribution of repetition and puncturing; and

rearranging the matrixes in each new sub-code according to the priority.

8 – 20. (Cancelled)